

HETEROJUNCTION BIPOLAR TRANSISTOR HAVING NON-UNIFORMLY DOPED COLLECTOR FOR IMPROVED SAFE-OPERATING AREA

ABSTRACT OF THE DISCLOSURE

[0025] The safe-operating area (SOA) in a heterojunction bipolar transistor (HBT) is improved by providing a collector region in the transistor having a graded (continuous or stepped) doping between the base region and the underlying subcollector region with the collector doping being lowest near the base and highest near the subcollector and with the collector doping being less than the doping of the subcollector. The non-uniformly doped collector reduces Kirk effect induced breakdown when collector current increases.